

Electric Vehicle Performance - Torque Required Worksheet

version: Err:508

Vehicle: Err:508

Weight: Err:520 lbs

Tires:

Vehicle Speed (mph)	10	15	20	25	30	35	40	45
Tire rolling resistance, Cr	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511
Brake and steering resistance, Cr	0.003							
Total rolling force (lbs)	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508
Still air drag force (lbs)	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508
Relative wind factor, Cw	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511
Relative wind drag force (lbs)	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508
Total drag force, level (lbs)	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508
Total drag torque, level (ft-lbs)	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511
Incline force, W _{Sin p} (lbs)	###							
Rolling drag force, CrW _{Cos p} (lbs)	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508
Total drag force, 5% (lbs)	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508
Total drag torque, 5% (ft-lbs)	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511
Incline force, W _{Sin p} (lbs)	###							
Rolling drag force, CrW _{Cos p} (lbs)	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508
Total drag force, 10% (lbs)	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508
Total drag torque, 10% (ft-lbs)	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511
Incline force, W _{Sin p} (lbs)	###							
Rolling drag force, CrW _{Cos p} (lbs)	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508
Total drag force, 15% (lbs)	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508
Total drag torque, 15% (ft-lbs)	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511
Incline force, W _{Sin p} (lbs)	###							
Rolling drag force, CrW _{Cos p} (lbs)	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508
Total drag force, 20% (lbs)	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508
Total drag torque, 20% (ft-lbs)	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511
Incline force, W _{Sin p} (lbs)	###							
Rolling drag force, CrW _{Cos p} (lbs)	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508

Total drag force, 25% (lbs)	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508	Err:508
Total drag torque, 25% (ft-lbs)	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511	Err:511

based on equations and data in "Build Your Own Electric Vehicle" by Bob Brant, Tab Books, 1994
 courtesy of Doug Wilson (send comments, corrections and improvements to wilson@bwco.com)

Err:508

50	55	60	65	70	75	80	85
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